

***Spanioneura fonscolombii* (Hemiptera: Psylloidea) a new jumping plant-lice for Romania fauna**

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Abstract

Boxwood (*Buxus sempervirens*) is a host for several mite and insect pests, but the species of plant-parasitic psyllid *Spanioneura fonscolombii* has been observed in Romania for the first time in 2017. Subsequent research has shown that the species is much more spread, our data confirming its presence in western, eastern, and southern Romania. This is also the most south-eastern record of the species in Europe.

Keywords

Psyllidae, Romania, distribution, first record.

The Psylloidea is a superfamily of true bugs (Hemiptera) and most of them bear the common name jumping plant-lice, with ca. 4.000 species described in more than 200 genera worldwide (Percy et al. 2018; Ouvrard 2022; Nakabachi 2022) and almost 400 species in Europe (Burckhardt 2022). They can be mistaken for leafhoppers (*Auchenorrhyncha*) but are easy to separate from those by the following characteristics: more complex wing venation, two-segmented tarsi, and long, multi-segmented

antennae (Martin and Webb 1999). The largest family is Psyllidae, having well over 1100 species in 69 genera (Percy et al. 2018).

Spanioneura genus contains 13 holarctic species (Drohojowska and Burckhardt 2014; Burckhardt 2021; Ouvrard 2022), associated with:

- Buxaceae (*Buxus sempervirens*)

Spanioneura buxi (Linnaeus, 1758), *S. caucasica* Loginova, 1968, *S. chujoi* (Miyatake, 1982), *S. fonscolombii* Foerster, 1848 (type species of the genus)

- Rosaceae (*Prunus dulcis*)

S. longicauda (Konovalova, 1986), *S. morimotoi* (Miyatake, 1963), *S. omogoensis* (Miyatake, 1963), *S. pechai* (Klimaszewski & Lodos, 1977), *S. persica* Burckhardt & Lauterer, 1993, *S. sanguinea* (Provancher, 1872), and *S. turkiana* (Klimaszewski & Lodos, 1977), *S. yasumatsui* (Miyatake, 1963), and *S. ziozankeana* (Kuwayama, 1908).

The genus name derives from “*spanios*” (gr. adj.) = scarce and “neuron(-i)” (gr. noun) = nerve, scarce nervation. The species *S. fonscolombii* is named in honor of Étienne Laurent Joseph Hippolyte Boyer de Fonscolombe, a French entomologist (Tuthill 1943).

S. fonscolombii is a species that originated from the Mediterranean region (Wittenberg 2005) but has a predominantly Western European distribution in Europe is known from Belgium, France, Great Britain, Ireland, Italy, Luxembourg, Slovenia, Spain, Sweden, and Switzerland (Burckhardt 2022; Conci et al. 1992; Gertsson 2015; Hodkinson and White 1979; Martin and Webb 1999; Rapisarda et al. 2022; Seljak 2006). It was collected for the first time in 2009 by A. Sonnemans in the Netherlands, and then in a few years it was dispersed all over the country (den Bieman et al 2019). In 2011 and 2012 it was observed for the first time in Sweden and in the Nordic countries (Gertsson 2015). Also, in June and July 2011, it was found for the first time in Ireland (O'Connor and Malumphy 2011).

Reports from outside Europe are in the USA (introduced) (Hodkinson 1988; Conci et al 1992) and Australia in 2021 by the Australian Government's Department of Agriculture and Water (DAWE). Britton reported in the USA notably in Connecticut in 1916 and is mentioned in the Checklist of the insects of Connecticut (Britton 1920) and in Massachusetts (Hodkinson 1988).

The food plant of this oligophagous species is mostly *B. sempervirens* (Hodkinson and White 1979; Conci et al 1992; Seljak 2006; Bieman 2019). The pale-green nymphs are coated in a white and silky wax (Scott 1879). The nymphs deform the leaves in a typical way-thickened and strongly concave. These deformed leaves can be confused with leaves deformed by *Spanioneura buxi*, the only other psyllid from this area that specializes in this hostplant but can be distinguished from *S. fonscolombii* by the tip of the abdomen, which is orange and lacks dark spots and yellowing on the wing cells.

It has one generation per year and overwinters in the adult stage on the host plant or in the litter on the ground and does not migrate (Bieman 2019; Seljak 2020; Rapisarda et al. 2022).

S. fonscolombii has the potential to cause negative economic consequences in Australia (DAWE 2020) because sucks on plant sap and causes damage similar to *S. buxi* (Gertsson, 2015), which produces galls or distorted leaves (Hodkinson 2009; O'Connor and Malumphy 2011), may also be considered as alien in Slovenia, as they are associated with the host plants introduced or spread into Slovenia a very long time ago (Seljak 2020). In Switzerland, *S. fonscolombii* is on the list of invasive alien species (Wittenberg 2005).

In Romania, this species was observed for the first time in 2017 in the northeastern part, and later in 2022 was found also in the west and the south of the country, which confirms its rapid spread and establishment in locations far from each other (Fig. 1).

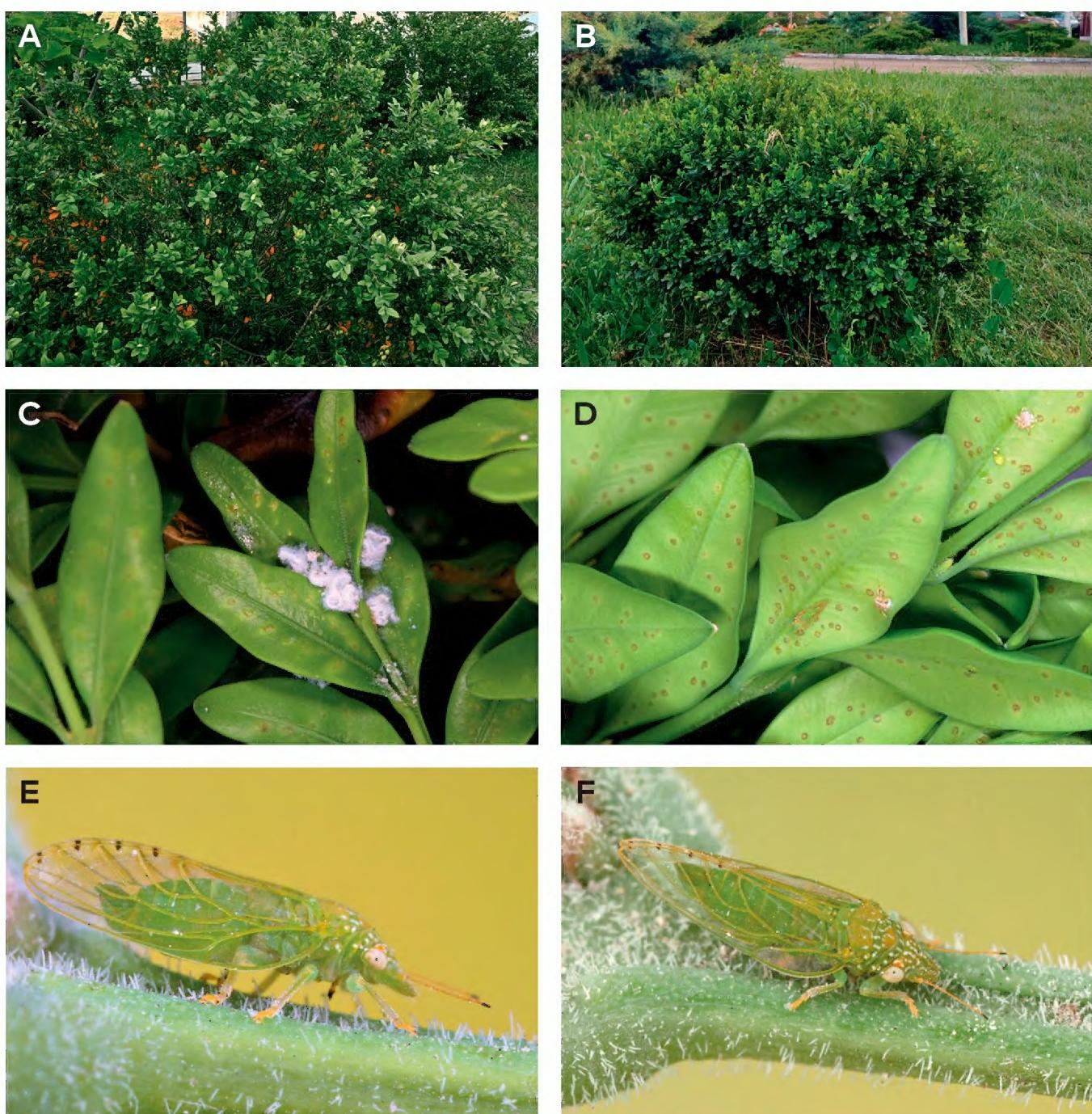


Figure 1. A and B Bush of *Buxus sempervirens* with *Spanioneura fonscolombii* in Timiș county - Fibis (A) and Bucovăț (B); C Aspect of the superior face of leaves and nymphs of *Spanioneura fonscolombii* in Bucovăț; D Aspect of the inferior face of the leaves showing feeding traces and exuviae of nymph in Bucovăț; E and F Adults of *Spanioneura fonscolombii* Iași county, Stânca. (Photo A to D by Florin Prunar; E and F by Cosmin-Ovidiu Manci).

Samples of psyllids were collected together with the host plant in a plastic ziplock bag. Preserved specimens were investigated with a stereomicroscope and photographed, and afterward stored in ethanol (100%) for studies.

For adult identification and the morphological terminology used in this paper follows Hodkinson and White (1979), Dobrea and Manolache (1962), Rapisarda et al. (2022), and description of the nymph from Scott (1879).

A distinctive pale yellow or green psyllid with an elongate pointed forewing, apex of wing usually rounded and dark spots at the apices of four cells. The forewing cells are yellowish, especially near the veins, which themselves are yellow and/or green. The legs and antennae are darkened distally. Adults have a length of 2.5–3 mm.

Sample locations

1. Stâncă, Iași county, 47.069823 N 27.804024 E, 21st of August 2017.
2. Mihai Bravu, Giurgiu county, host plant apparently healthy located near the road; coordinates 44.1393346 N 26.053505 E, 22nd of May 2022.
3. Beiuș, Bihor county, very abundant on the host plant, 46.666972690 N 22.344541980 E, 31st of May 2022, large bushes over 2 m high.

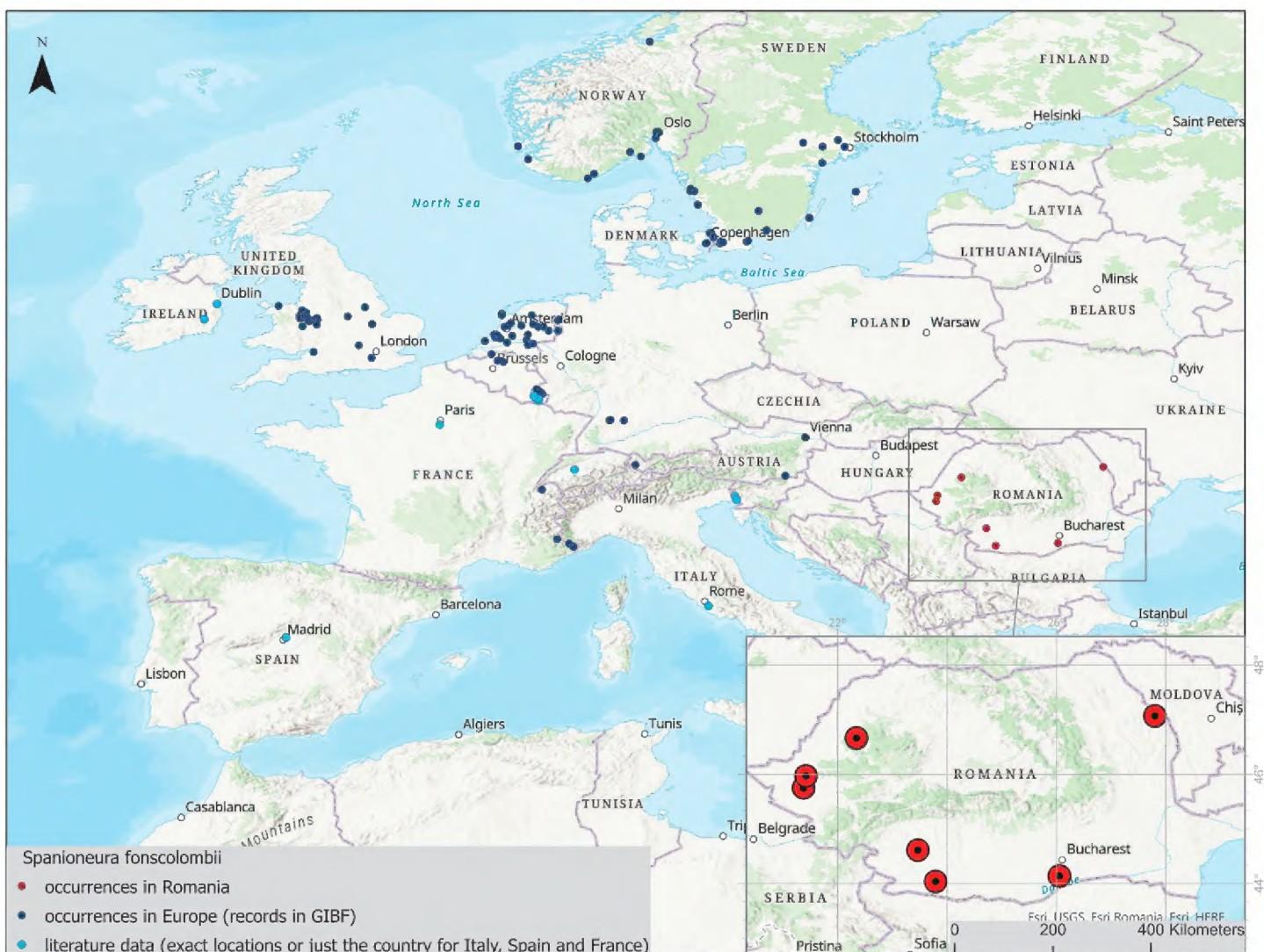


Figure 2. The distribution map of *Spanioneura fonscolombii* in Europe and new data for Romania (red dots = new occurrences).

4. Bucovăț, Timiș county, 45.753463 N 21.378565 E, 26th of May 2022, a single small bush of *Buxus* on the side of the road.
5. Fibiș, Timiș county, 45.973786820 N 21.422209040 E, 2nd of June 2022, *Buxus* bushes over 1.5 high in a square of public green space on the side of the road.
6. Gângiova, Dolj county, 43.89349301 N 23.85870463 E, 18th of March 2023, long lines of buxus bushes in the village park.
7. Beharca, Dolj county, 44.446960 N, 23.681384 E, 19th of March 2023, short lines of buxus around the parking of a boarding house.

Comparatively with the locations data from GIBF and the current bibliographic mentions of the species, the new locations from Romania confirm the expansion of the range area towards the southeast (Fig. 2).

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